

What is claimed is:

1. A semiconductor device comprising:

a die pad section;

a first semiconductor chip having a surface on which a first electrode section is formed, and a back surface fixed to the die pad section;

a second semiconductor chip having a surface on which a second electrode section is formed, and a back surface fixed to the surface of the first semiconductor chip;

a support member having a surface fixed to the back surface of the second semiconductor chip and a back surface fixed to the die pad section;

lead terminal sections respectively electrically connected to the first and second electrode sections; and

a resin encapsulating body that seals the die pad section, the first and second semiconductor chips and the support member.

2. A semiconductor device according to claim 1, wherein the first semiconductor chip and the second semiconductor chip respectively have electric circuits each having the same function.

3. A semiconductor device according to claim 1, wherein the first semiconductor chip and the second

semiconductor chip have the same shape and size respectively.

4. A semiconductor device according to claim 1, wherein the support member is formed in isolation from the first semiconductor chip.

5. A semiconductor device according to claim 1, wherein the support member is formed integrally with the first semiconductor chip.

6. A semiconductor device according to claim 5, wherein the first semiconductor chip and the support member are formed in a semiconductor wafer and thereafter formed separately in an integral state.

7. A semiconductor device according to claim 1, wherein the surface of the first semiconductor chip has first and second sides opposite to each other,

the surface of the second semiconductor chip has third and fourth sides opposite to each other, and

the fourth side of the second semiconductor chip protrudes from the second side of the first semiconductor chip, and the fourth side thereof is located above the support member.

8. A method of manufacturing a semiconductor device

including a die pad section, a first semiconductor chip having a surface on which a first electrode section is formed, and a back surface opposite to the surface, a second semiconductor chip having a surface on which a second electrode section is formed and a back surface opposite to the surface, a support member having a surface and a back surface, lead terminal sections, and a resin encapsulating body, said method comprising the following steps of:

fixing the back surface of the first semiconductor chip and the surface of the support member to the die pad section;

fixing the back surface of the second semiconductor chip to the surface of the first semiconductor chip and the surface of the support member;

electrically connecting the first and second electrode sections to the lead terminal sections respectively; and

sealing the die pad section, the first and second semiconductor chips and the support member with a resin.

9. A method according to claim 8, further comprising the steps of:

preparing a first semiconductor wafer having circuit forming regions and circuit non-forming regions;

forming an electric circuit in said each circuit forming region of the first semiconductor wafer; and

separating each of the circuit forming regions of the first semiconductor wafer and each of the circuit non-forming regions thereof as the first semiconductor chip and the support member, respectively, in an integral state.

10. A method according to claim 9, further comprising the steps of:

preparing a second semiconductor wafer having circuit forming regions and circuit non-forming regions;
forming an electric circuit in each of the circuit forming regions of the second semiconductor wafer; and
separating the circuit forming regions and the circuit non-forming regions of the second semiconductor wafer in several and forming each of the circuit forming regions as a second semiconductor chip.

11. A method according to claim 8, wherein upon connection of the first and second electrode sections to the lead terminal sections, metal wires are adhered to the first and second electrode sections by supersonic vibrations.